United States Department of Agriculture

Animal and Plant Health Inspection Service

National Wildlife Research Center

Wildlife Services Seeking Solutions Through Research

Induced Infertility: A Wildlife Management Tool

Contact Information:
Research Physiologist (Immunology)
USDA/APHIS/WS/NWRC
4101 LaPorte Avenue
Fort Collins, CO 80521
Phone: 970-266-6163 FAX: 970-266-6157
Website: www.aphis.usda.gov/ws/nwrc

National Wildlife Research Center Scientists Study Wildlife Contraception

Wildlife Services' (WS) National Wildlife Research Center (NWRC) is the only Federal research facility devoted exclusively to resolving conflicts created by the interaction of wildlife and people through the development of effective, selective, and acceptable methods, tools, and techniques.

WS has given high priority to research on reproductive management of various bird and mammal species involved in human-wildlife conflicts. Deer pose a safety hazard to motorists, consume ornamental shrubs, and affect habitat quality in public parks as they become more overpopulated. Rodents are hosts for a variety of diseases and cause damage to rangelands and crops resulting in the loss of millions of dollars in agriculture production. Canada goose populations have increased markedly in recent years, causing nuisance problems and health concerns in and around urban areas. Coyotes cause severe losses to livestock producers each year. Research on fertility control for coyotes is being addressed by NWRC scientists at the Utah Field Station. The goal of this project is to develop and field test economical and effective agents to suppress fertility in populations of specific pest species of mammals and birds.

Groups Affected by These Problems:

Urban residents
Airports
Airlines
Airline passengers
Motorists
Farmers
Ranchers/livestock producers
Natural resource managers
Landscapers

Applying Science and Expertise to Wildlife Challenges

Wildlife Contraception—NWRC researchers have had success in testing a contraceptive on white-tailed deer at Pennsylvania State University with the injectable vaccines PZP (porcine zona pellucida) and GnRH (gonadotropin releasing hormone). Effective and economical oral infertility agents for other wildlife species (e.g., prairie dogs, Canada geese, coyotes) are also being developed. Furthermore, NWRC scientists are testing the stability and viability of an oral vaccine in a variety of formulations to find the best method for delivery of the infertility agents.

Field Situations—Presently, NWRC has two Investigational New Animal Drug (INAD) permits for the PZP and GnRH injectable vaccines which allows contraception research of white-tailed deer in field situations. Testing of the oral infertility agents developed through these studies will be conducted in either large fenced areas or field situations as products evolve and field sites are identified with populations of deer, geese, prairie dogs, or coyotes.

Major Research Accomplishments:

WS demonstrated that the chemical, Nicarbazin, has potential as a reproductive inhibitor for Canada geese

WS obtained Investigational New Animal Drug exemption from the Food and Drug Administration for four infertility agents to permit field tests

WS completed second year of tests of GnRH as a contraceptive to deer in New York

Selected Publications:

Miller, L.A., B.E. Johns and G.J. Killian. 1999. Long-term Effects of PZP Immunization on Reproduction in White-tailed Deer. *Vaccine* 18(5-6):568-574.

Miller, L.A. and K.A. Fagerstone. 2000. Induced Infertility as a Wildlife Management Tool. 19th Vertebrate Pest Conference, March 6-9, 2000, San Diego, CA. pp. 160-168.

Miller., L.A., B.E. Johns and G.J. Killian. 2000. Immunocontraception of White-tailed Deer with GnRH Vaccine. *Journal or Reproductive Immunology* 44:266-274.